

Collaborative Freshwater Habitat Research for Pacific Northwest Salmon

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Wild salmon in the Pacific Northwest have declined to a point that current runs are, on average, less than 10 percent of historical levels. A major cause of the decline over the long term has been changes in salmon habitat. By focusing salmon recovery resources on improving or protecting the most crucial habitat, salmon runs could be improved. But what habitat is the most important? Answering this question requires interdisciplinary research and collaborative approaches. The Western Ecology Division's (WED) Freshwater Habitat Project is conducting research in coastal Oregon watersheds to quantify the most important stream habitat for maintaining and improving runs of wild salmon. The project, headed by hydrologist Dr. Parker Wigington, involves research that addresses both the Clean Water Act's overall goal of maintaining and restoring the physical, biological, and chemical integrity of the nation's waters and the Endangered Species Act and interagency efforts for endangered species on the West Coast. An essential element of the research effort is collaboration with scientists and managers from the Oregon Department of Fish and Wildlife (ODFW), the U.S. Forest Service Pacific Northwest Research Station (Forest Service), U.S. Bureau of Land Management, and National Oceanic and Atmospheric Administration (NOAA) Fisheries. ODFW operates unique, long-term, life cycle monitoring stations in which salmon smolts leaving watersheds and returning adult salmon are measured. WED scientists compliment ODFW monitoring by quantifying multiple habitat attributes (physical, chemical, temperature) throughout stream networks and using passive integrated transponder (PIT) tagged juvenile salmon to quantify salmon movement and survival. Forest Service researchers have instrumented streams at road crossings to quantify how salmon move through modern culverts. This instrumentation provides a very powerful system, when combined with the WED instrumentation and efforts, to track juvenile salmon in watersheds. NOAA Fisheries scientists have conducted a study to examine how restoration structures influence fish distribution and abundance. Collectively, these efforts will provide a more complete picture of the habitat needs and restoration opportunities for at-risk native fishes than could be accomplished by Agency research conducted independently.